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Sequence Listing was accepted.

See attached Validation Report.

If you need help call the Patent Electronic Business Center at (866)
217-9197 (toll free).

Reviewer: Durreshwar Anjum

Timestamp: [year=2010; month=4; day=14; hr=14; min=23; sec=10; ms=231;]

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Application No: 10581014 Version No: 1.0

Input Set:**Output Set:**

Started: 2010-04-05 18:02:15.979
Finished: 2010-04-05 18:02:39.014
Elapsed: 0 hr(s) 0 min(s) 23 sec(s) 35 ms
Total Warnings: 629
Total Errors: 34
No. of SeqIDs Defined: 711
Actual SeqID Count: 711

| Error code | Error Description |
|------------|--|
| W 213 | Artificial or Unknown found in <213> in SEQ ID (5) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (6) |
| E 355 | Empty lines found between the amino acid numbering and the |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (9) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (10) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (11) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (12) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (13) |
| W 402 | Undefined organism found in <213> in SEQ ID (15) |
| E 355 | Empty lines found between the amino acid numbering and the |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (15) |
| W 402 | Undefined organism found in <213> in SEQ ID (20) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (21) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (22) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (23) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (24) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (25) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (26) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (27) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (28) |

Input Set:

Output Set:

Started: 2010-04-05 18:02:15.979
Finished: 2010-04-05 18:02:39.014
Elapsed: 0 hr(s) 0 min(s) 23 sec(s) 35 ms
Total Warnings: 629
Total Errors: 34
No. of SeqIDs Defined: 711
Actual SeqID Count: 711

| Error code | Error Description |
|------------|--|
| W 213 | Artificial or Unknown found in <213> in SEQ ID (29) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (30) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (31) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (32) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (33) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (34) This error has occurred more than 20 times, will not be displayed |
| W 402 | Undefined organism found in <213> in SEQ ID (96) |
| W 402 | Undefined organism found in <213> in SEQ ID (97) |
| E 355 | Empty lines found between the amino acid numbering and the |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (99) |
| E 355 | Empty lines found between the amino acid numbering and the |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (103) |
| W 402 | Undefined organism found in <213> in SEQ ID (112) |
| W 402 | Undefined organism found in <213> in SEQ ID (113) |
| W 402 | Undefined organism found in <213> in SEQ ID (118) |
| W 402 | Undefined organism found in <213> in SEQ ID (119) |
| W 402 | Undefined organism found in <213> in SEQ ID (132) |
| E 355 | Empty lines found between the amino acid numbering and the |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (646) |
| W 402 | Undefined organism found in <213> in SEQ ID (648) |
| W 402 | Undefined organism found in <213> in SEQ ID (653) |
| W 402 | Undefined organism found in <213> in SEQ ID (654) |

Input Set:

Output Set:

Started: 2010-04-05 18:02:15.979
Finished: 2010-04-05 18:02:39.014
Elapsed: 0 hr(s) 0 min(s) 23 sec(s) 35 ms
Total Warnings: 629
Total Errors: 34
No. of SeqIDs Defined: 711
Actual SeqID Count: 711

| Error code | Error Description |
|------------|--|
| E 355 | Empty lines found between the amino acid numbering and the |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (654) |
| W 402 | Undefined organism found in <213> in SEQ ID (656) |
| W 402 | Undefined organism found in <213> in SEQ ID (663) |
| W 402 | Undefined organism found in <213> in SEQ ID (666) |
| W 402 | Undefined organism found in <213> in SEQ ID (671) |
| E 355 | Empty lines found between the amino acid numbering and the |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (671) |
| W 402 | Undefined organism found in <213> in SEQ ID (677) |
| W 402 | Undefined organism found in <213> in SEQ ID (683) |
| W 402 | Undefined organism found in <213> in SEQ ID (684) |
| E 355 | Empty lines found between the amino acid numbering and the |
| E 321 | No. of Bases conflict, this line has no nucleotides SEQID (684) |
| W 402 | Undefined organism found in <213> in SEQ ID (688) This error has occurred more than 20 times, will not be displayed |
| E 341 | 'Xaa' position not defined SEQID (701) POS (168) |
| E 341 | 'Xaa' position not defined SEQID (701) POS (169) |
| E 341 | 'Xaa' position not defined SEQID (701) POS (170) |
| E 341 | 'Xaa' position not defined SEQID (701) POS (171) |
| E 341 | 'Xaa' position not defined SEQID (701) POS (172) |
| E 341 | 'Xaa' position not defined SEQID (701) POS (173) |
| E 341 | 'Xaa' position not defined SEQID (701) POS (174) |
| E 341 | 'Xaa' position not defined SEQID (701) POS (175) |

Input Set:

Output Set:

Started: 2010-04-05 18:02:15.979

Finished: 2010-04-05 18:02:39.014

Elapsed: 0 hr(s) 0 min(s) 23 sec(s) 35 ms

Total Warnings: 629

Total Errors: 34

No. of SeqIDs Defined: 711

Actual SeqID Count: 711

| Error code | Error Description |
|------------|--|
| E 341 | 'Xaa' position not defined SEQID (701) POS (176) |
| E 341 | 'Xaa' position not defined SEQID (701) POS (177) |
| E 341 | 'Xaa' position not defined SEQID (701) POS (178) |
| E 341 | 'Xaa' position not defined SEQID (701) POS (179) |
| E 341 | 'Xaa' position not defined SEQID (701) POS (180) |
| E 341 | 'Xaa' position not defined SEQID (701) POS (181) |
| E 341 | 'Xaa' position not defined SEQID (701) POS (182) |
| E 341 | 'Xaa' position not defined SEQID (701) POS (183) |
| E 341 | 'Xaa' position not defined SEQID (701) POS (184) |
| E 341 | 'Xaa' position not defined SEQID (701) POS (185) |

SEQUENCE LISTING

<110> Genencor International, Inc.
The Procter & Gamble Company
Amin, N.S.
Boston, M.G.
Bott, R.R.
Cervin, M.A.
Concar, E.M.
Gustwiller, M.E.
Jones, B.E.
Liebeton, K.
Miracle, G.S.
Oh, H.
Poulose, A.J.
Ramer, S.W.
Scheibel, J.J.
Weyler, W.
Whited, G.M.

<120> Perhydrolase

<130> GC821-2-PCT

<140> 10581014

<141> 2010-04-05

<150> PCT/US04/40438

<151> 2004-12-03

<150> US 60/526,764

<151> 2003-12-03

<160> 711

<170> PatentIn version 3.2

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<213> Mycobacterium smegmatis

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cagctcggag cggacttcga ggtgatcgag gagggactga gcgcgcgcac caccaacatc 180

gacgacccca ccgatccgcg gctcaacggc gcgagetacc tgccgtcgtg cctcgcgcagc 240

cacctgccgc tcgacctggt gatcatcatg ctgggcacca acgacaccaa ggctacttc 300

cggcgacacc cgctcgacat cgcgctgggc atgtcgggtgc tcgtcacgca ggtgctcacc 360

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gacgcggggtt cggatgatcag caccgacggc gtcgacggaa tccacttcac cgaggccaac 600
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<210> 2
<211> 216
<212> PRT
<213> Mycobacterium smegmatis

<400> 2

| | | | | | | | | | | | | | | | | | | | |
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| Met | Ala | Lys | Arg | Ile | Leu | Cys | Phe | Gly | Asp | Ser | Leu | Thr | Trp | Gly | Trp | 1 | 5 | 10 | 15 |
| Val | Pro | Val | Glu | Asp | Gly | Ala | Pro | Thr | Glu | Arg | Phe | Ala | Pro | Asp | Val | 20 | 25 | 30 | |
| Arg | Trp | Thr | Gly | Val | Leu | Ala | Gln | Gln | Leu | Gly | Ala | Asp | Phe | Glu | Val | 35 | 40 | 45 | |
| Ile | Glu | Glu | Gly | Leu | Ser | Ala | Arg | Thr | Thr | Asn | Ile | Asp | Asp | Pro | Thr | 50 | 55 | 60 | |
| Asp | Pro | Arg | Leu | Asn | Gly | Ala | Ser | Tyr | Leu | Pro | Ser | Cys | Leu | Ala | Thr | 65 | 70 | 75 | 80 |
| His | Leu | Pro | Leu | Asp | Leu | Val | Ile | Ile | Met | Leu | Gly | Thr | Asn | Asp | Thr | 85 | 90 | 95 | |
| Lys | Ala | Tyr | Phe | Arg | Arg | Thr | Pro | Leu | Asp | Ile | Ala | Leu | Gly | Met | Ser | 100 | 105 | 110 | |
| Val | Leu | Val | Thr | Gln | Val | Leu | Thr | Ser | Ala | Gly | Gly | Val | Gly | Thr | Thr | 115 | 120 | 125 | |
| Tyr | Pro | Ala | Pro | Lys | Val | Leu | Val | Val | Ser | Pro | Pro | Pro | Leu | Ala | Pro | 130 | 135 | 140 | |
| Met | Pro | His | Pro | Trp | Phe | Gln | Leu | Ile | Phe | Glu | Gly | Gly | Glu | Gln | Lys | 145 | 150 | 155 | 160 |
| Thr | Thr | Glu | Leu | Ala | Arg | Val | Tyr | Ser | Ala | Leu | Ala | Ser | Phe | Met | Lys | 165 | 170 | 175 | |
| Val | Pro | Phe | Phe | Asp | Ala | Gly | Ser | Val | Ile | Ser | Thr | Asp | Gly | Val | Asp | 180 | 185 | 190 | |
| Gly | Ile | His | Phe | Thr | Glu | Ala | Asn | Asn | Arg | Asp | Leu | Gly | Val | Ala | Leu | 195 | 200 | 205 | |
| Ala | Glu | Gln | Val | Arg | Ser | Leu | Leu | | | | | | | | | 210 | 215 | | |

<210> 3
<211> 19
<212> PRT
<213> Mycobacterium parafortuitum

<400> 3

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<210> 4
<211> 19
<212> PRT
<213> Mycobacterium parafortuitum

<400> 4

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1 5 10 15

Ile Pro Val

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<213> Artificial Sequence

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<223> primer

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<211> 59
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 6
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<210> 7
<211> 10
<212> DNA
<213> Mycobacterium smegmatis

<400> 7
ggctgggggc 10

<210> 8

<211> 1779

<212> DNA

<213> *Mycobacterium smegmatis*

<400> 8

| | | | | | | |
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| ggatgttcgt | cgccccgga | tccggccgac | cggttctcgg | cgttcgccga | ggcgtgggc | 120 |
| cgcaaggatg | cggccgcggc | ggccgcccag | accagcgatc | cggcggccgc | ggaggcggcc | 180 |
| atcaccgcga | tgctggccgg | gatgggcgac | gccgcgaacg | tctcggtggc | cgccgaaccc | 240 |
| gaggaaggcg | acgacgcggg | cgcgacgctg | aagtacacgt | ggacctgggg | tgagggccgc | 300 |
| gacttcggct | acgacaccac | cgcgacggcg | gccaaatccg | gtgacgactg | gctgatcacc | 360 |
| tggtcccca | ccgtgttgca | ccgcgacctc | accccgatc | tgcgcttcca | gtacagcgag | 420 |
| gacagcgaat | tgagacccc | ggtgctcgac | cgcaccggcc | agccgttgat | gacatggcag | 480 |
| accgtcggtg | tcatcactgt | cgaacgcgca | catccggagt | cggccgcacc | gctcgccgcc | 540 |
| ctgctggcgc | ccttcgatcc | gaccaccacc | accgaatcgg | tcaccgcaca | actcaattcg | 600 |
| acgaccgatg | accgcgtgac | ggtgatgaag | ctgcgcgagg | acgatctggg | tcaggtgcgc | 660 |
| gatcagctcg | cgcagatccc | cggcgtgacc | gtgcgtgagc | agggtgagct | gctcaccgcc | 720 |
| gaccggcagc | tgtcctcgcc | cgccatcagc | ggcctggacg | agctgtggca | cgaccggatc | 780 |
| accgccaacg | cgggctggtc | ggtgtacctg | gtcgacgccg | acggtgcacc | cgcacaacag | 840 |
| ctcacgtcca | cgcgcgcccc | ggacaccggg | cccgtgcgca | ccacgctgga | cctgcgcatg | 900 |
| caactgctcg | cgcagcaggc | cgtggccaag | gagacccgcc | cggccgtggg | ggtcgcgac | 960 |
| tccggatcga | ccgggggcat | cctggccgcc | gcacagaacc | cggccgccga | tccgcaaggt | 1020 |
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| gcagccctcg | acgcgggcct | ggccacccc | gacacaccgg | tggcctgccc | gggtgagctc | 1140 |
| accatcgaga | accgcacgat | ccccaacgac | gacaacttcg | acctgggcac | cgtgccgttg | 1200 |
| tcgtcggcgt | tctcgcactc | ctgcaacacc | agcatggccg | ccctgtccga | cgagctgccg | 1260 |
| cccaacgcac | tgaccgacat | ggcaaaggac | ttcgggatcg | gcgtcgactt | catggtgccc | 1320 |
| ggcctgacca | ccgtgaccgg | ccgtgtcccc | aacgccgaca | acgccgcccc | gcgtgtcgag | 1380 |
| aacggcatcg | gccagggcac | cgtgaccgtc | agcccgttcg | gcctcgccgt | cgcgaggccc | 1440 |
| agcctggcgc | acggttcgac | gatcctgccg | acgtgggtcg | acggcgagaa | gaccacggcc | 1500 |
| gacaccccg | cgggtgccgt | gccgcccaac | atcaccgacg | cgtgcgcgc | gatgatgcgc | 1560 |

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<210> 9
<211> 592
<212> PRT
<213> *Mycobacterium smegmatis*

<400> 9

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | His | Leu | Arg | Pro | Ala | Leu | Thr | Trp | Leu | Leu | Val | Val | Gly | Leu | Phe | 1 | 5 | 10 | 15 |
| Ile | Ser | Val | Val | Gly | Cys | Ser | Ser | Ser | Pro | Asp | Pro | Ala | Asp | Arg | Phe | 20 | 25 | 30 | |
| Ser | Ala | Phe | Ala | Glu | Ala | Leu | Gly | Arg | Lys | Asp | Ala | Ala | Ala | Ala | Ala | 35 | 40 | 45 | |
| Ala | Gln | Thr | Ser | Asp | Pro | Ala | Ala | Ala | Glu | Ala | Ala | Ile | Thr | Ala | Met | 50 | 55 | 60 | |
| Leu | Ala | Gly | Met | Gly | Asp | Ala | Ala | Asn | Val | Ser | Val | Ala | Ala | Glu | Pro | 65 | 70 | 75 | 80 |
| Glu | Glu | Gly | Asp | Asp | Ala | Gly | Ala | Thr | Leu | Lys | Tyr | Thr | Trp | Thr | Trp | 85 | 90 | 95 | |
| Gly | Glu | Gly | Arg | Asp | Phe | Gly | Tyr | Asp | Thr | Thr | Ala | Thr | Ala | Ala | Lys | 100 | 105 | 110 | |
| Ser | Gly | Asp | Asp | Trp | Leu | Ile | Thr | Trp | Ser | Pro | Thr | Val | Leu | His | Arg | 115 | 120 | 125 | |
| Asp | Leu | Thr | Pro | Asp | Leu | Arg | Phe | Gln | Tyr | Ser | Glu | Asp | Ser | Glu | Leu | 130 | 135 | 140 | |
| Gln | Thr | Pro | Val | Leu | Asp | Arg | Thr | Gly | Gln | Pro | Leu | Met | Thr | Trp | Gln | 145 | 150 | 155 | 160 |
| Thr | Val | Gly | Val | Ile | Thr | Val | Glu | Arg | Ala | His | Pro | Glu | Ser | Ala | Ala | 165 | 170 | 175 | |
| Pro | Leu | Ala | Ala | Leu | Leu | Ala | Pro | Phe | Asp | Pro | Thr | Thr | Thr | Thr | Glu | 180 | 185 | 190 | |
| Ser | Val | Thr | Ala | Gln | Leu | Asn | Ser | Thr | Thr | Asp | Asp | Arg | Val | Thr | Val | 195 | 200 | 205 | |
| Met | Lys | Leu | Arg | Glu | Asp | Asp | Leu | Gly | Gln | Val | Arg | Asp | Gln | Leu | Ala | 210 | 215 | 220 | |

| | | | |
|---|-----|-----|-----|
| Gln Ile Pro Gly Val Thr Val Arg Glu Gln Gly Glu Leu Leu Thr Ala | | | |
| 225 | 230 | 235 | 240 |
| Asp Arg Gln Leu Ser Ser Pro Ala Ile Ser Gly Leu Asp Glu Leu Trp | | | |
| | 245 | 250 | 255 |
| His Asp Arg Ile Thr Ala Asn Ala Gly Trp Ser Val Tyr Leu Val Asp | | | |
| | 260 | 265 | 270 |
| Ala Asp Gly Ala Pro Ala Gln Gln Leu Thr Ser Thr Pro Pro Lys Asp | | | |
| | 275 | 280 | 285 |
| Thr Gly Pro Val Arg Thr Thr Leu Asp Leu Arg Met Gln Leu Leu Ala | | | |
| | 290 | 295 | 300 |
| Gln Gln Ala Val Ala Lys Glu Thr Arg Pro Ala Val Val Val Ala Ile | | | |
| 305 | 310 | 315 | 320 |
| Ser Gly Ser Thr Gly Gly Ile Leu Ala Ala Ala Gln Asn Pro Ala Ala | | | |
| | 325 | 330 | 335 |
| Asp Pro Gln Gly Ala Ile Ala Phe Ser Gly Leu Tyr Pro Pro Gly Ser | | | |
| | 340 | 345 | 350 |
| Thr Phe Lys Thr Ile Thr Thr Ala Ala Ala Leu Asp Ala Gly Leu Ala | | | |
| | 355 | 360 | 365 |
| Thr Pro Asp Thr Pro Val Ala Cys Pro Gly Glu Leu Thr Ile Glu Asn | | | |
| | 370 | 375 | 380 |
| Arg Thr Ile Pro Asn Asp Asp Asn Phe Asp Leu Gly Thr Val Pro Leu | | | |
| 385 | 390 | 395 | 400 |
| Ser Ser Ala Phe Ser His Ser Cys Asn Thr Ser Met Ala Ala Leu Ser | | | |
| | 405 | 410 | 415 |
| Asp Glu Leu Pro Pro Asn Ala Leu Thr Asp Met Ala Lys Asp Phe Gly | | | |
| | 420 | 425 | 430 |
| Ile Gly Val Asp Phe Met Val Pro Gly Leu Thr Thr Val Thr Gly Arg | | | |
| | 435 | 440 | 445 |
| Val Pro Asn Ala Asp Asn Ala Ala Gln Arg Val Glu Asn Gly Ile Gly | | | |
| | 450 | 455 | 460 |
| Gln Gly Thr Val Thr Val Ser Pro Phe Gly Leu Ala Val Ala Glu Ala | | | |
| 465 | 470 | 475 | 480 |
| Ser Leu Ala His Gly Ser Thr Ile Leu Pro Thr Leu Val Asp Gly Glu | | | |
| | 485 | 490 | 495 |
| Lys Thr Thr Ala Asp Thr Pro Ser Val Pro Leu Pro Pro Asn Ile Thr | | | |
| | 500 | 505 | 510 |
| Asp Ala Leu Arg Ala Met Met Arg Gly Thr Val Thr Glu Gly Thr Ala | | | |
| | 515 | 520 | 525 |

Thr Ala Leu Ser Asp Ile Pro Asp Leu Gly Gly Lys Thr Gly Thr Ala
530 535 540

Glu Phe Gly Asp Asn Thr His Ser His Gly Trp Phe Ala Gly Ile Ala
545 550 555 560

Gly Asp Ile Ala Phe Ala Thr Leu Val Val Gly Gly Asp Ser Ser Ala
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Pro Ala Val Ala Ile Ser Gly Asp Phe Leu Arg Pro Ala Leu Ala Gly
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<210> 10

<211> 592

<212> PRT

<213> Artificial Sequence

<220>

<223> penicillin binding protein

<400> 10

Met His Leu Arg Pro Ala Leu Thr Trp Leu Leu Val Val Gly Leu Phe
1 5 10 15

Ile Ser Val Val Gly Cys Ser Ser Ser Pro Asp Pro Ala Asp Arg Phe
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Ser Ala Phe Ala Glu Ala Leu Gly Arg Lys Asp Ala Ala Ala Ala Ala
35 40 45

Ala Gln Thr Ser Asp Pro Ala Ala Ala Glu Ala Ala Ile Thr Ala Met
50 55 60

Leu Ala Gly Met Gly Asp Ala Ala Asn Val Ser Val Ala Ala Glu Pro
65 70 75 80

Glu Glu Gly Asp Asp Ala Gly Ala Thr Leu Lys Tyr Thr Trp Thr Trp
85 90 95

Gly Glu Gly Arg Asp Phe Gly Tyr Asp Thr Thr Ala Thr Ala Ala Lys
100 105 110

Ser Gly Asp Asp Trp Leu Ile Thr Trp Ser Pro Thr Val Leu His Arg
115 120 125

Asp Leu Thr Pro Asp Leu Arg Phe Gln Tyr Ser Glu Asp Ser Glu Leu
130 135 140

Gln Thr Pro Val Leu Asp Arg Thr Gly Gln Pro Leu Met Thr Trp Gln
145 150 155 160

Thr Val Gly Val Ile Thr Val Glu Arg Ala His Pro Glu Ser Ala Ala
165 170 175

Pro Leu Ala Ala Leu Leu Ala Pro Phe Asp Pro Thr Thr Thr Thr Glu

| | | | | |
|---|-----|-----|-----|-----|
| 180 | | 185 | | 190 |
| Ser Val Thr Ala Gln Leu Asn Ser Thr Thr Asp Asp Arg Val Thr Val | | | | |
| 195 | | 200 | | 205 |
| Met Lys Leu Arg Glu Asp Asp Leu Gly Gln Val Arg Asp Gln Leu Ala | | | | |
| 210 | | 215 | | 220 |
| Gln Ile Pro Gly Val Thr Val Arg Glu Gln Gly Glu Leu Leu Thr Ala | | | | |
| 225 | | 230 | | 235 |
| 240 | | | | |
| Asp Arg Gln Leu Ser Ser Pro Ala Ile Ser Gly Leu Asp Glu Leu Trp | | | | |
| | 245 | | 250 | 255 |
| His Asp Arg Ile Thr Ala Asn Ala Gly Trp Ser Val Tyr Leu Val Asp | | | | |
| | 260 | | 265 | 270 |
| Ala Asp Gly Ala Pro Ala Gln Gln Leu Thr Ser Thr Pro Pro Lys Asp | | | | |
| | 275 | | 280 | 285 |
| Thr Gly Pro Val Arg Thr Thr Leu Asp Leu Arg Met Gln Leu Leu Ala | | | | |
| | 290 | | 295 | 300 |
| Gln Gln Ala Val Ala Lys Glu Thr Arg Pro Ala Val Val Val Ala Ile | | | | |
| 305 | | 310 | | 315 |
| | | | | 320 |
| Ser Gly Ser Thr Gly Gly Ile Leu Ala Ala Ala Gln Asn Pro Ala Ala | | | | |
| | 325 | | 330 | 335 |
| Asp Pro Gln Gly Ala Ile Ala Phe Ser Gly Leu Tyr Pro Pro Gly Ser | | | | |
| | 340 | | 345 | 350 |
| Thr Phe Lys Thr Ile Thr Thr Ala Ala Ala Leu Asp Ala Gly Leu Ala | | | | |
| | 355 | | 360 | 365 |
| Thr Pro Asp Thr Pro Val Ala Cys Pro Gly Glu Leu Thr Ile Glu Asn | | | | |
| | 370 | | 375 | 380 |
| Arg Thr Ile Pro Asn Asp Asp Asn Phe Asp Leu Gly Thr Val Pro Leu | | | | |
| 385 | | 390 | | 395 |
| | | | | 400 |
| Ser Ser Ala Phe Ser His Ser Cys Asn Thr Ser Met Ala Ala Leu Ser | | | | |
| | 405 | | 410 | 415 |
| Asp Glu Leu Pro Pro Asn Ala Leu Thr Asp Met Ala Lys Asp Phe Gly | | | | |
| | 420 | | 425 | 430 |
| Ile Gly Val Asp Phe Met Val Pro Gly Leu Thr Thr Val Thr Gly Arg | | | | |
| | 435 | | 440 | 445 |
| Val Pro Asn Ala Asp Asn Ala Ala Gln Arg Val Glu Asn Gly Ile Gly | | | | |
| | 450 | | 455 | 460 |
| Gln Gly Thr Val Thr Val Ser Pro Phe Gly Leu Ala Val Ala Glu Ala | | | | |
| 465 | | 470 | | 475 |
| | | | | 480 |
| Ser Leu Ala His Gly Ser Thr Ile Leu Pro Thr Leu Val Asp Gly Glu | | | | |

| 485 | 490 | 495 |
|---|-----|-----|
| Lys Thr Thr Ala Asp Thr Pro Ser Val Pro Leu Pro Pro Asn Ile Thr | | |
| 500 | 505 | 510 |
| Asp Ala Leu Arg Ala Met Met Arg Gly Thr Val Thr Glu Gly Thr Ala | | |
| 515 | 520 | 525 |
| Thr Ala Leu Ser Asp Ile Pro Asp Leu Gly Gly Lys Thr Gly Thr Ala | | |
| 530 | 535 | 540 |
| Glu Phe Gly Asp Asn Thr His Ser His Gly Trp Phe Ala Gly Ile Ala | | |
| 545 | 550 | 555 |
| Gly Asp Ile Ala Phe Ala Thr Leu Val Val Gly Gly Asp Ser Ser Ala | | |
| 565 | 570 | 575 |
| Pro Ala Val Ala Ile Ser Gly Asp Phe Leu Arg Pro Ala Leu Ala Gly | | |
| 580 | 585 | 590 |

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tcactcatta ggcaccccag gctttacact ttatgcttcc ggctcgtatg ttgtgtggaa 180

| | |
|--|-----|
| ttgtgagcgg ataacaattt cacacaggaa acagctatga ccatgattac gccaaagctat | 240 |
| ttaggtgaca ctatagaata ctcaagctat gcatcaagct tggtagcgag ctcggatcca | 300 |
| ctagtaacgg ccgccagtgt gctggaattc gcccttctaa caggaggaat taaccatggc | 360 |
| caagcgaatt ctgtgtttcg gtgattccct gacctggggc tgggtccccg tcgaagacgg | 420 |
| ggcaccacc gagcggttcg ccccgacgt gcgctggacc ggtgtgctgg cccagcagct | 480 |
| cggagcggac ttcgaggtga tcgaggaggg actgagcgcg cgcaccacca acatc | |